

# How Many Light bulbs Does It Take to Change A University?

Sarah Hammond Creighton, Project Manager

Tufts Climate Initiative  
Miller Hall

Medford MA 02155

617-627-5517

fax: 617-627-6645

[screight@tufts.edu](mailto:screight@tufts.edu)

[www.tufts.edu/tci](http://www.tufts.edu/tci)



How many light bulbs does it take  
to change a university?

- a) None
- b) One
- c) 20,000
- d) All of the above



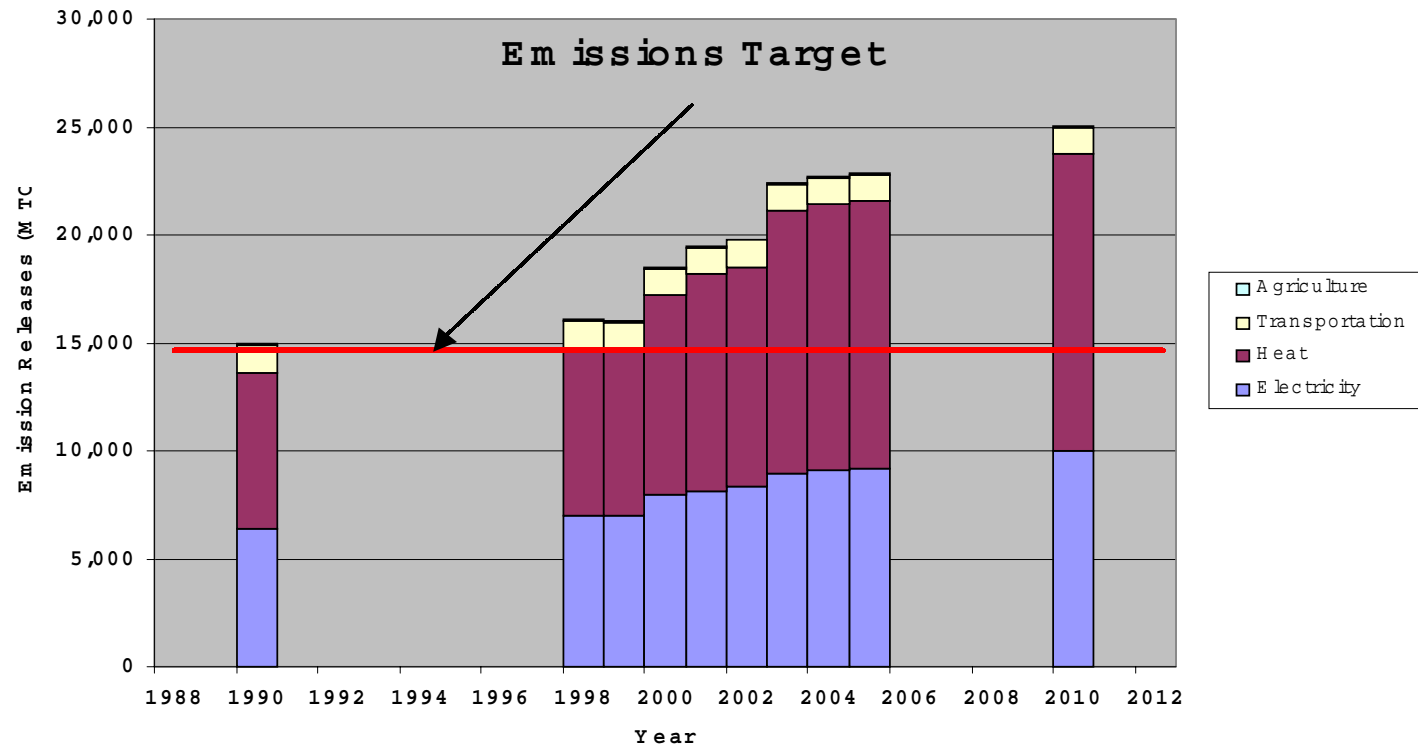
# Commitment

*“I am pleased to join with several other organizations and companies today and publicly commit Tufts University to meet or beat the Kyoto goal of a seven percent reduction below 1990 in our carbon dioxide emissions by the year 2012.”*

Tufts University President John DiBiaggio  
April 1999

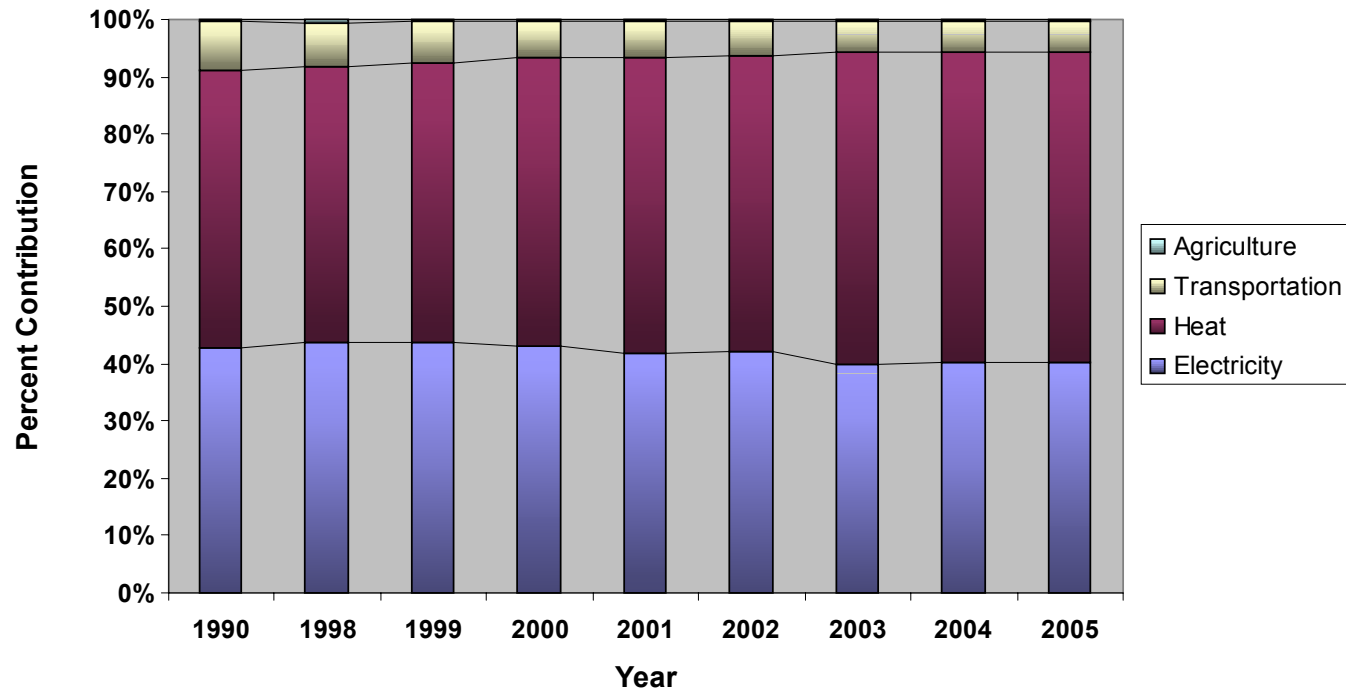


## Tufts University Carbon Inventory



**7% below 1990 CO2 levels translates  
into 30% reduction**

## Percent Contribution by Source



Gloria, 2001





Tufts Climate Initiative (TCI) works with Tufts to meet the carbon emissions reduction goals.

TCI works closely with and relies upon the Division of Operations to meet these goals.



# 1) CO2 Reductions:

New Buildings and Major Renovations

Existing Buildings: renovations and retrofits

Alternative Fuels

Personal Action

Planning and Policy

**2) Research and Monitoring**

**3) Education and Outreach**

# Identifying What to Do Is Easy

Energy Star Buildings Program

US Green Building Program

Utility Rebate Programs

Northeast Energy Partnership

Northeast Sustainable Energy  
Association

Books, experts, conferences

# How to “do” it is hard!

Ask the right questions.

Evaluate the answers.



# Questions to Ask

1. How can we achieve efficiency?
2. What results do we want?
3. What are the agreed decision-making methods?
4. What is the process and who are the people who affect this project?

# New Buildings: Wildlife Clinic at School of Veterinary Medicine

Heat recovery

Digital controls

Hardy Plank

Front loading washing machine

Commissioning



# **Wildlife Clinic Questions**

- 1. Where are 15 air changes per hour needed?**
- 2. Should we spend more on construction to save on operating costs?**
- 3. How do we determine these costs?**
- 4. How big should the HVAC be?**



# Renovations: Schmalz House



## The Oil Boilers at Schmalz House



# Heating: Sizing and Controls





## **LESSONS**

- ***Piggy-back onto planned retrofits (deferred maintenance)***
- ***Lack of crafts people experienced with big institutions***
- ***“Typical” engineers overlook alternative energy***

## **Schmalz House Questions**

- 1. Why this house? (no summer use)**
- 2. How can we piggy-back on planned maintenance?**
- 3. Who should we ask?**
- 4. Who is qualified? (solar)**

# Tufts University Science & Technology Center

---

Year Built: 1990

Category:  
Academic/Research

Gross Area:  
86,525 Sq. Ft.

Address:  
4 Colby Street  
Medford Campus



# **Science and Technology Center**

- 1. How was it designed?**
- 2. How is it operating?**
- 3. What problems does the current way of operating solve?**
- 4. Why do the A/C units run 24/7?**

## Lighting

- Green Lights Partner
- Campus-wide installation of efficient lamps and ballasts.
- 1100 CF lamps for desk lights.
- Occupancy sensors



**In the chapel CF lamps in chandeliers cut electricity cost in half.**

## Lighting Questions

- 1) What is the appropriate technology?
- 2) What do we stock routinely?
- 3) How do we develop standards?
- 4) How do we create feedback mechanisms?



## Alternative Fuels

### Fairmont House Questions?

- 1) Who's in charge?
- 2) Why wait?
- 3) Can we benefit from a programmatic approach, rather than a single project?



# New Technologies:

## Vending Misers

[www.bayviewtech.com](http://www.bayviewtech.com)

## **THE STORY...**

- Student intern found out about it
- Ordered one to try out, showed almost 50% savings, payback 1-2 years
- Talked with Coke and facilities and oked
- Ordered about 100
- Temporarily installed some of them (union issues!)
- Contractor installed them permanently
- Student left
- Coke company had to move machines to gain access
- New student installed them temporarily
- Contractor had to come back
- Machines had to be moved back into place
- We went back to check cables and put up signs.
- Complaints started to come in: circuits blown out
- Complaints continue, Facilities gets made, refuse to respond to service calls about misers
- Frantically search for solutions:
- Repeater!!!

This machine is equipped with a

## **Vending Miser Questions**

- 1) How often does Tufts move vending machines?**
- 2) What is that process?**
- 3) How can we train the right people?**
- 4) How to we mandate the misers?**

Learn more about how  
you can stop climate change!  
Visit us at: [www.tufts.edu/tci](http://www.tufts.edu/tci)  
or call us at: 617-627-5517

# Planning Questions

1. How do we move from a project by project approach to a more comprehensive program?
2. How do we increase the size and scale of energy projects to meet goals?

# Planning and Policy

## The Energy Affairs Council

- Representatives of all 8 schools
- Develop energy recommendations for administration
- e.g. we have no university temperature standards and policies
- \$1 million annual fund for energy projects

How many light bulbs does it take  
to change a university?

- a) None
- b) One
- c) 20,000
- d) All of the above



Answer:

This is the wrong  
question!





[www.tufts.edu](http://www.tufts.edu)

[tci@tufts.edu](mailto:tci@tufts.edu)